

***AMENDMENT UNDER 37 C.F.R. § 1.111***  
***U. S. Application No. 10/780,673***

**REMARKS**

In the present application, claims 1-5 have been examined. Claims 6-8 are withdrawn from further consideration. By the present amendment, Applicant adds new claims 9 and 10.

Claims 1-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ang, et al. (US 5,056,362; hereinafter “Ang”) in view of Genova, et al. (US 6,032,527; hereinafter “Genova”).

Ang relates to an improved means for structurally strengthening the diaphragm in the region of the hot element of a silicon mass air flow (MAF) sensor. A matrix consisting of glass microspheres and cured epoxy is disposed in a cavity at the backside of the silicon diaphragm to strengthen the diaphragm without any significant adverse influence on the ability of the sensor to quickly and accurately respond to changes in mass air flow.

Genova relates to a solid state microanemometer with improved structural integrity, sensing capability and versatility, which is micromachined from a bonded silicon wafer comprising two silicon layers.

The present invention relates to a thermosensitive flow rate detecting element for measuring an air intake flow rate in an internal combustion engine.

Applicant submits that the applied references fail to teach or suggest all of the limitations of the claims of the present invention. Specifically, Ang and Genova do not disclose the claimed heating resistor portion composed of a thermosensitive resistor film formed from a rear surface side of the base material on a portion of the electrically-insulating film formed at a position of the aperture of said cavity, as recited in claim 1. The Examiner concedes that Ang does not disclose that the heating resistor portion is formed from a rear surface side of the base material at

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the cavity. On the other hand, the Examiner asserts that Genova discloses an air flow sensor comprising heating resistor portions 26 and 28 composed of a thermosensitive resistor film 30 and 32 from a rear surface side of the base material. Applicant respectfully disagrees with the Examiner's assessment of Genova.

As recited in claim 1 of the present invention, the heating resistor portion is formed from a rear surface side of the base material. By contrast, the sensor 12 of Genova, which forms the resistor element between conductor lines 18 and 20, is formed above a top surface of the base 14. See FIGS. 3A, 3B and 4 of Genova. In the Office Action, elements 26 and 28 are called heating resistor portions, but elements 26 and 28 of Genova are vias (holes) in the base 14, which are used to provide connections to the back side of the base material. In preferred embodiments of Genova, the vias 26 and 28 are filled with conductive materials. Thus, there is no teaching or suggestion that the vias 26 and 28 correspond to heating resistor portions. Moreover, although the Examiner asserts that elements 30 and 32 are thermosensitive resistor films, Genova discloses that the sidewalls 30 and 32 are insulators for the conductive material disposed in the vias 26 and 28. See col. 6, lines 2-6 and 18-20. Therefore, Genova fails to teach or suggest the features of claim 1 that are admitted to be missing from Ang. Accordingly, claim 1 is allowable over the prior art.

Also, Applicant submits that there is no teaching, suggestion or motivation to combine the references. Although increasing the sensitivity of a sensing element may be a generally desirable feature in a sensor, there is no particular reason in the references or in the Examiner's comments to modify Ang to include the vias 26 and 28 and the sidewall oxide layers 30 and 32 of Genova. There must be a specific teaching, suggestion or motivation to modify Ang by the

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teachings of Genova, not simply a generally desirable property. Here, there is no such specific teaching, suggestion or motivation. Furthermore, Ang is directed to the structural strengthening of the diaphragm in the region of the hot element of a silicon mass air flow (MAF) sensor, without particular regard to the sensitivity of the sensor. Therefore, Applicant submits that claim 1 is allowable for this additional reason.

Applicant submits that claims 2 and 3 are allowable, at least because of their dependence from claim 1.

With further regard to claim 3, Applicant submits that the prior art fails to teach or suggest all of the limitations of the claim. Recited in claim 3 is a leader pattern constituted by a portion of said thermosensitive resistor film constituting the heating resistor portion extending outward from the heating resistor portion along a wall surface of the cavity onto the rear surface of the base material. The Examiner points to the sidewall oxide layers 30 and 32 of Genova as allegedly corresponding to the claimed leader pattern. However, as described above, the sidewall oxide layers 30 and 32 do not correspond to thermosensitive resistor films. Rather, the sidewall oxide layers 30 and 32 are insulators for the conductive material disposed in the vias 26 and 28. Thus, claim 3 is allowable for this reason also.

Applicant submits that the prior art does not teach or suggest all of the limitations of claim 4. In particular, the prior art does not disclose a heating resistor portion composed of a thermosensitive resistor film formed on an exposed surface of the electrically-insulating film exposed inside the cavity. Neither Ang, nor Genova discloses a heating resistor portion formed on an exposed surface of the electrically-insulating film exposed inside the cavity. Rather, Ang and Genova disclose resistor elements formed on surfaces above their base materials, outside of

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their cavities. See FIG. 2 of Ang and FIG. 4 of Genova. Thus, claim 4 is allowable over the prior art.

Claim 5 is allowable due to its dependence from claim 4.

Also, Applicant submits that claim 5 is allowable for reasons analogous to those for claim 3.

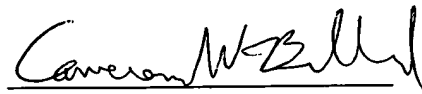
New claims 9 and 10 are added to further define the present invention. Claims 9 and 10 are allowable, at least because of their dependence from claim 1.

Additionally, claim 1 is amended to change "a" to "said" in line 6.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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